FARMLINE

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Can you pick out the "real" farm?

☐ **All of the above.**

Exporting to Egypt
page 10

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PERSPECTIVES

AMERICANS SMOKED AN ESTIMATED 594 BILLION CIGARETTES last year. This was about 1% fewer cigarettes than the previous year and a 7% drop from the record number smoked in 1981.

Average per capita consumption declined to 3,378 cigarettes, down 2% from 1984 and the smallest number since 1944. The figure is calculated by dividing the total number of cigarettes smoked by the 18-and-over population.

The outlook for 1986 and 1987, according to USDA economist Verner Grise: Overall use and per capita consumption will fall again. Grise cites a variety of reasons, including increases in state excise taxes, further increases in retail prices, heightened antismoking activity, and additional restrictions on where people can smoke.

Tax increases have raised cigarette prices significantly during the last few years. The federal excise tax was raised to 16¢ on January 1, 1983, doubling the 8¢ per-pack tax levied back in 1951. The increase, which was to have been temporary, is now expected to become permanent, Grise says. State excise taxes have also gone up in 30 states since 1983, with average increases of 5¢ a pack. State tax levies now vary widely — from 2¢ a pack in North Carolina to 28¢ in Maine. In some areas, consumers face additional city-imposed taxes. The combined city and state taxes in New York City add 29¢ to the price of a pack of cigarettes. In Chicago, the city and state tack-on is 43¢. And, Grise says, state and city tax increases are likely this year.

Wholesale cigarette prices rose in December after an increase just 6 months earlier in June. The December increase marked the tenth hike since August 1982. Grise cites increased manufacturer costs and the doubled federal excise tax. Retail cigarette prices jumped 43% from August 1982 to December 1985, but the rate of increase slowed down during the last 2 years. Prices rose 6% in 1985 and are likely to be up 6% to 8% this year. The slower rate of increase, together with the switch by some smokers to lower priced generic cigarettes, could cushion the decline in cigarette use.

Antismoking activity, including legislation, continues to affect the industry. More than four-fifths of the states now have laws that either prohibit smoking in certain places or segregate smokers and nonsmokers, particularly in restaurants. Workplace smoking regulations are in effect in ten states, and a large number of towns and cities have smoking restrictions. The industry also faces other legal challenges, Grise says. Even though rulings in two recent product-liability suits were favorable to tobacco manufacturers, a number of additional suits are pending. Although the impacts are difficult to measure, the legal restrictions and antismoking publicity campaigns almost surely account for some of the downward trend in per capita consumption, he adds.

The increased prominence of health warnings on cigarette packages and advertising adds another uncertainty. As a result of changes in the Federal Cigarette Labeling and Advertising Act last October, there are now four separate health warnings which are rotated at 3-month intervals for each brand of cigarettes. The same system applies to advertising. The warnings on cigarette packages are about twice as large as the original ones, which were instituted in 1971.

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FEATURES

What (Exactly) Is a Farm? *by Doug Martinez* 4

The answer to the quiz on the cover is "All of the above." And that may be a problem. Economist David Harrington says a too-inclusive definition can distort perceptions of farm conditions and mislead those who make farm policy.

Exporting to Egypt *by Doug Martinez* 10

The United States is the leading supplier of Egypt's growing $4-billion market for food imports, but the U.S. share has been slipping. How America fares in the face of ever-tougher competition will depend, says one expert, on the credit and export incentive programs we are willing to offer.

Improving China's Livestock Industry *by Ellen Banker* 12

China's goal of putting more meat in the diet may help beef up future Sino-American agricultural trade. China is already importing top-quality pigs, chickens, and dairy cattle to improve its native stock, and modernization of its livestock industry will probably require imported feed processing equipment and a return to the world feed grain market.

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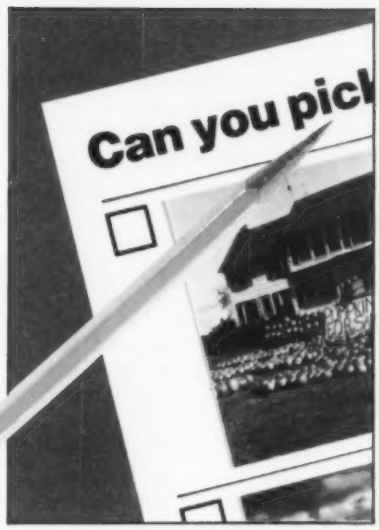
Tear out and save this handy telephone guide to Economic Research Service and Statistical Reporting Service specialists who can help with your questions on crop and livestock developments, trade, farm finances, and other agricultural topics.



What (Exactly) Is a Farm?

Stretched to cover everything from a small, backyard apple grove to a 3,000-cow dairy operation, the word *farm* has lost the sharp snap of precision.

"It means everything in general and nothing in particular," says economist Dave Harrington, a farm analyst with USDA's Economic Research Service.

The major reason, according to Harrington, is that the definition hasn't changed nearly as much as farming itself.

In the official count, any operation that produces and sells just $1,000 worth of agricultural products a year qualifies as a farm. Even at today's prices, that may mean no more than a few beef animals, an acre of sweet corn, or a dozen fruit trees and a roadside stand.

It can mean that people who spend 40 hours a week in an office or factory and devote some spare time to raising crops or animals on a few rural acres are lumped together with full-time family farmers who depend on agriculture for their livelihood. The family-size farms, in turn, are lumped together with the "super farms" grossing $1 million or more a year.

Harrington and his colleagues do not want to sit in judgment of who can claim the title of "farmer," nor is their interest simply one of semantics. They point out that when the government chooses to use a particular definition for statistical purposes, the choice has important implications.

These implications, they add, deserve the attention of those who must analyze farm structure, financial conditions, and farm policy.

"Too broad a definition begets a blurred vision that can distort perceptions of farming's financial status, its size, and its place in American society. And it can conceal significant distinctions among different types of farms," Harrington says.

The definition of a farm was last changed in 1974, and before that in 1959. Neither change was very significant, even though the structure of American farming was undergoing a dramatic transformation.

Many economists now support the idea of using commercial farms when talking about problems related to agricultural production and export markets.

Revolution in Farm Structure

Certainly, the word *farm* once represented the reality of numerous, small, mixed-enterprise operations that comprised American agriculture. The similarity in farm size and structure throughout the nation meant that a simple, virtually all-inclusive definition was usually correct.

That is no longer true—and a lot has happened to make such a definition less meaningful, and perhaps even misleading.

"There's a greater diversity in farm size, greater specialization in farm production, and greater concentration of production among the larger-sized commercial farms," says Harrington. "Today, about 30 percent of the farms produce nearly 90 percent of the nation's crops and livestock."

One other change from the agricultural sector of the mid-1930's—when the term *farm* could last be broadly and accurately applied—is the fact that farm numbers have fallen by nearly two-thirds.

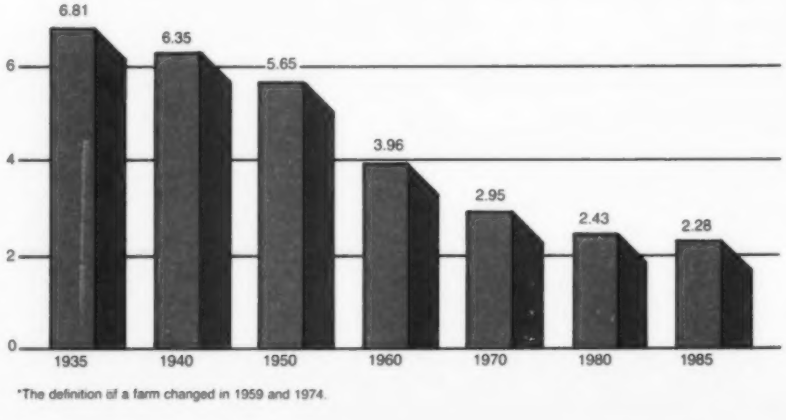
All these changes have made American farming a model of efficiency and productivity—but they have also created a potential problem.

"The problem occurs when today's widely diverse farm sizes are blended into an 'average' farm," says Harrington.

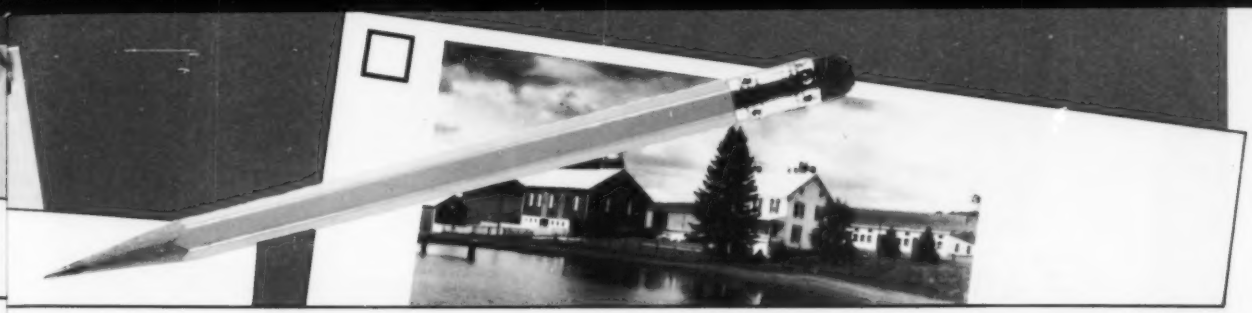
For example, when the many, very small units are counted among the nation's farms in the government statistics, their incomes, assets, and debts are often averaged with the financial data of other farms. As a result, their strengths or weaknesses sometimes become part of the statistical profile shaping perceptions of conditions in the farm sector. In policy discussions, their needs can get intertangled with the sharply different needs of those who farm for a living and provide the bulk of the nation's food supply.

Recognizing the misleading picture that can result from data on all farms, USDA economists tend to depend less on aggregate farm data and more on data that is

By 1985, Farm Numbers Had Dropped to a Third of the 1935 Level*



*The definition of a farm changed in 1959 and 1974.



broken down by sales classes, commodities, and producing regions.

These analysts are also focusing more on commercial-size farms, particularly where interest centers on those farms that produce the nation's food and fiber and depend on income from agriculture.

According to Harrington, clearer definitions, and divisions, of farming allow analysts to make more accurate judgments about the state of American agriculture.

"Many now support the idea of using commercial farms (generally those with annual sales of $40,000 or more) when talking about problems related to agricultural production and export markets. It is these operators who provide nearly 90 percent of the nation's food and fiber," Harrington says.

"The economic situation of the smaller farms that make up almost three-fourths of the farm sector often depends more on the availability of off-farm job opportunities, which, in turn, are related to developments in the general economy," he says. "On the other hand, larger-sized commercial units which comprise only 30 percent of the sector are more dependent on farm income and cash flow, and more susceptible to weak export demand and changes in interest rates."

Decline in Farm Numbers

Another example of the problem of imprecise definition arises in discussions on the decline in farm numbers.

"It's sometimes viewed as a problem, but the trend may be very different depending on what is counted as a farm," he says. "The drop in farm numbers is confined largely to farms with sales of less than $40,000 a year."

Harrington suggests that farms can be divided, initially, into commercial and noncommercial categories.

These categories in turn can be further divided, he says. Noncommercial farms can be broken down into rural residences (less than $10,000 annual sales) and small family farms ($10,000 to $39,999 annual sales). The commercial farm category, which is elastic enough to encompass sev-

More Than Statistics

A statistical definition of farming may be important—but numbers alone don't begin to measure its meaning.

As a nation, we seem to have a fondness for farming, even in the words we use to describe the land and those who nurture it to nourish us.

America's "heartland" has always suggested something more than simple geography—soul and spirit, perhaps.

It has been a hearth, some say, in which the human spirit was warmed and the values and virtues of hard work and honesty were fostered. A special caring about family and the foundation of it all—the land—was there too.

Thus, working with the land and livestock has seemed like a special mission to many, particularly when such handiwork is rewarded by providing food for far more than the farm family.

Those who find their fulfillment in farming—and whose artistry in agriculture has proven the most productive in the world—are proud of their knack with nature.

Maybe it's not so hard to understand, then, why the suffering for some farmers who can't pay their debts and can't borrow any more goes beyond financial crisis or collapse.

For many of them, the emotional pain and bewilderment of losing a family farm means they have lost their way of life.

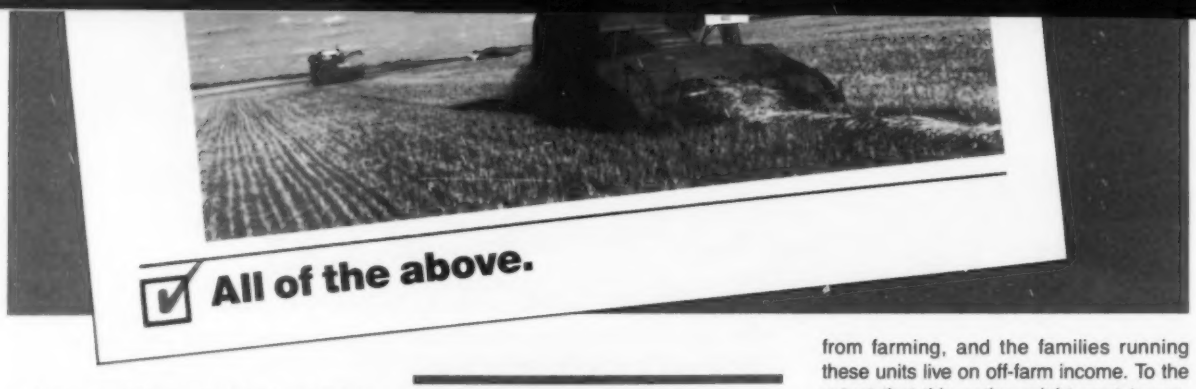
And it brings into sharp focus the debate over what a farm is: Is it simply a business like any other, responsible for producing the nation's food and fiber? Or is it something more, which government should take special steps to preserve?

Farmers whose families have been food providers for generations say something irreplaceable is being lost as more farmers leave the land for financial reasons.

There's a saying by American orator and statesman William Jennings Bryan that is enjoying new life amidst the heartache in America's heartland. It seems to sum up, if anything can, what many family farmers are feeling these days:

"Burn down your cities and leave our farms, and your cities will spring up as if by magic," said Bryan, speaking in 1896, "but destroy our farms, and the grass will grow in the streets of every city in the country."

Farming can't be measured by statistics alone. Farmers whose families have been food providers for generations say it's a way of life worth preserving.



eral classes of farms, can also be split into at least two subgroups: family farms ($40,000 to $249,999 sales annually) and larger-than-single-family farms ($250,000 or more in annual sales).

"Roughly half the nation's farms are noncommercial, rural residences," says Harrington, "and roughly 5 percent are larger-than-single-family operations. The rural residence farms (those with less than $10,000 in annual sales) produce only about 3 percent of total output. The larger-than-single-family operations have increased their share from one-third to half of total U.S. output during the last two decades."

Small operations depend less on farm income for their livelihood.

"By 1982, operators in the rural residence and small family farm categories did not depend on farming as their primary source of income," says Harrington. "Family-sized farms now show greater dependence on net farm income than off-farm income. Larger-than-single-family farms realized large net farm incomes, but these were often split between several owners or operators."

Definitions Only a Beginning

Definitions are simply a starting point, however, for the work of developing policies that respond to the realities of today's agriculture. While a clear definition certainly doesn't guarantee good policy, Harrington says, an overly broad definition can add confusion to a policymaking process that requires full recognition of the diversity within the farm sector.

Definitions are simply the starting point for the work of developing relevant farm policies.

This diversity includes around 1.1 million "farms" with annual sales of less than $10,000 a year. Harrington classifies these as rural residences because, statistically, they are more residences than farms. On average, their off-farm incomes are around $20,000 a year, while their net farm incomes are negative.

"If the purpose of farm policy is to reach those who farm for a living or those who produce the bulk of the nation's food and fiber, the needs and aspirations of this group are probably outside the appropriate scope of farm policy," he says.

The same might be true of the small family farms—those with annual sales of $10,000 to $39,999 a year. As a group, they also show consistently negative net incomes from farming, and the families running these units live on off-farm income. To the extent that this nation might want to preserve these farms or reduce the incidence of poverty among them in certain parts of the country, the tools might include better job opportunities, job training, and social welfare programs rather than traditional farm programs.

"It is hard to see how either commodity policy or credit policy could raise income in the noncommercial sales classes sufficiently so that one could make a living from farming," says Harrington.

Even if noncommercial units were excluded from the farm definition, there would still be risks in lumping the family-sized farms and the larger farms together in policy deliberations. Harrington notes, for example, that farm programs designed to provide a more favorable price environment for the family-sized farms may actually encourage the growth of larger-than-family-size farms.

"The benefits of price support and related programs are proportional to sales of the supported commodities, so the benefits tend to be concentrated among the largest farms which make most of the sales," he says. "It is generally agreed that the limitations on direct government payments have not been very effective in limiting assistance to very large farms."

If the aim is to reduce production surpluses, then programs clearly have to appeal to the largest farms that produce the largest volumes. On the other hand, if the goal is to help the family-sized commercial farm, then the same programs may be counterproductive. In either case, defining the terms of the discussion is a vital first step.

As elementary as that sounds, analysts agree that some of the policy failures of the past can be blamed, at least in part, on a reluctance to recognize the diversity in farming and to clearly define who should, and who should not, receive the attention of farm policymakers. □

[Based largely on information provided by economist David Harrington of the Agriculture and Rural Economics Division, Economic Research Service.]

The Farm Count Is Stacked with Small Units That Earn Their Income Off the Farm and Contribute Only About 11% of Total Production

	Annual sales of agricultural products			
	Less than $10,000	$10,000-$39,999	$40,000-$249,999	$250,000 and up
Percent of farms	48%	22%	25%	5%
Percent of production	3%	8%	40%	49%
Average net farm income per farm	-$1,758	-$579	$16,251	$180,704
Average off-farm income per farm	$20,332	$19,344	$10,110	$12,352
Average assets per farm	$134,548	$273,738	$706,086	$2,339,741

All data from 1984.

Thirty-Five Years of Farm Values

The land and buildings of the average U.S. farm were worth about $13,700 in 1950. Average value per acre was $65. Both figures climbed steadily until reaching peak values of $352,000 per farm and $823 per acre in 1982.

Since then, real estate values have dropped sharply. In 1985, the average farm's land and buildings were worth $296,379, and the average value per acre was $679. Farm buildings accounted for 13 percent of the total value of U.S. farm real estate in 1985, down from 30 percent in 1950. Average farm size more than doubled in the same period, from 213 to 437 acres.

Farm real estate debt increased from $5.6 billion to more than $111 billion between 1950 and 1984. Because debt rose much faster than real estate values, debt's role in the farm real estate picture doubled. In 1950, farmers owed only 7 percent of the value of their real estate to creditors. By 1984, the national average was 14 percent, and it was higher in some states.

In Iowa, for example, debt's share of farm real estate values climbed from 7.7 percent in 1950 to 11.2 percent in 1981 and 17.7 percent in 1984. The average Iowa farm increased in value from $27,100 in 1950 to a high of $570,900 in 1981. From 1981 to 1985, however, average real estate value dropped 45 percent to $316,400.

This statistical bulletin—a valuable reference tool for anyone interested in farm real estate values—covers all states except Alaska and Hawaii. For each state, USDA's annual data on farm real estate values, number of farms, acreage in farms, farm real estate debt, and farm real estate taxes are presented for 1950 to 1985.

Farm Real Estate: Historical Series Data, 1950-85 *by John Jones and Charles Barnard. (Published December 1985; 51 pages of data tables; GPO Stock Number 001-019-00434-7; $2.00.)*

Who Works on Farm Labor Crews?

Most farmworkers are hired directly by farmers or farm managers, but others are hired by labor contractors who provide work crews to farmers.

Farm labor contractors must register with the U.S. Department of Labor before they can recruit farmworkers. According to a recent study of 1981 data (the latest available), most of the 9,774 farm labor contractors certified by the Labor Department resided in the Southeast and Southwest.

Roughly 250,000 farmworkers worked for farm labor contractors that year—10 percent of the nation's 2.5 million hired farmworkers. Twenty-eight percent of the farmworkers on crews reported that they spent most of their time working in grain production, 24 percent worked primarily in fruits and tree nuts, and 18 percent in vegetables and melons.

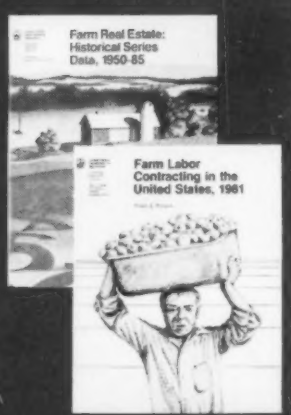
Nearly 40 percent of the workers were under age 17, and many of them worked only during school breaks or after school hours. Of those age 25 and over, however, 70 percent had completed no more than 8 years of school.

One out of five crew workers was paid on a piece-rate basis, but most were paid hourly wages. The average hourly wage was $3.58. About one-third of the workers came from families with incomes of $20,000 a year or more.

Those in higher income families were mostly short-term workers who put in fewer than 75 days in a crew. The short-term workers accounted for 79 percent of all crew workers.

In contrast to short-term workers, most long-term crew workers were members of minority groups (78 percent were Hispanic, black, or other minorities, compared with 39 percent of short-term workers), and they were more likely to work in the harvest of fruits and vegetables. Long-term workers averaged $5,776 in overall earnings in 1981—96 percent from farmwork.

Farm Labor Contracting in the United States, 1981 *by Susan Pollack. (Published November 1985; 13 pages of text, tables, and charts; GPO Stock Number 001-019-00426-6; $1.00.)*



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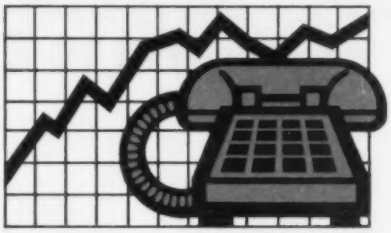

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Exporting to Egypt

The United States should continue to be the leading supplier of Egypt's growing $4-billion-plus market for food imports—as long as favorable trade terms are made available.

That's the view of economists George Gardner and John Parker of USDA's Economic Research Service. The two analysts recently examined Egypt's market potential for U.S. products.

"If the United States is to maintain or expand its share of this large and growing market, new financing arrangements will probably be necessary," say the two economists. "Egypt's foreign exchange position will probably not improve soon. Its major sources of foreign exchange revenue—money sent home by Egyptians working abroad, petroleum exports, Suez Canal tolls, and tourism—are all highly vulnerable to fluctuations in the world economy."

U.S. exports—largely wheat, corn, tallow, tobacco, and wheat flour—currently comprise about one-fifth of the value of food and farm products imported into Egypt. Even if that market share were to stay constant, Gardner notes, U.S. exports would grow.

Farming is confined to less than 3% of Egypt's total land area, even though nearly all arable land is already farmed intensively.

"By 1990," he says, "assuming continued rapid population growth and only slight income gains, Egypt will probably import over 8 million tons of wheat and flour from all sources, up from 7 million tons in 1984."

In many cases, projected increases in imports of other farm goods are more impressive: possibly around 4 million tons of corn by 1990, up from 1.7 million tons in 1983; 1 million tons of sugar, up from 716,000 tons in 1983; 500,000 tons of vegetable oil, up from 330,000 tons; and 500,000 tons of meat, up from 225,000 tons.

"Egyptian farmers certainly won't be able to meet all the increased need," says Gardner. "They can't meet the nation's food needs now, and about half of the total food supply is imported."

Egypt's farmers are finding it difficult to keep up with demand generated by a 2.8-percent annual population growth rate and rapidly increasing per capita consumption of many basic commodities.

Limited Farmland

"Almost all arable land is already farmed intensively," says Gardner, "and attempts to expand croplands through desert reclamation have largely been nullified by urban expansion. Farming is confined to about 3 percent of Egypt's total land area, occupying almost exclusively the narrow ribbon of soil deposited along the Nile River."

Government programs to fill this food gap have led to increasingly larger imports of basic commodities, including wheat, wheat flour, corn, vegetable oils, meat, sugar, dairy products, and pulses.

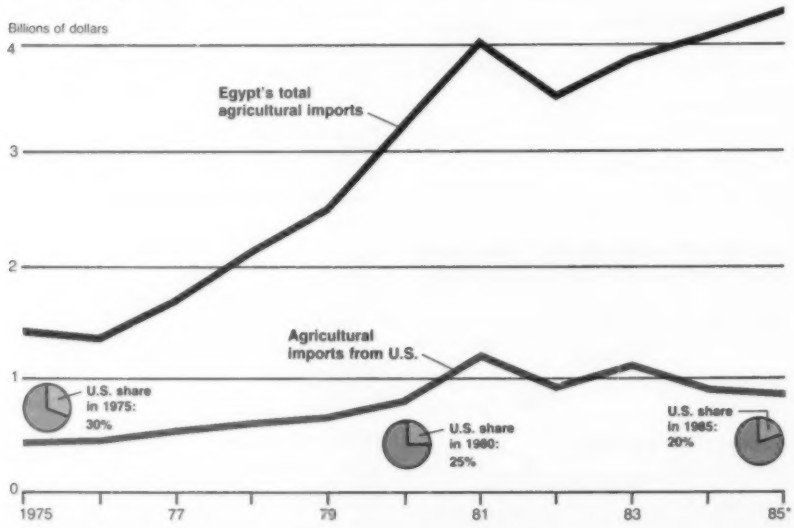
The U.S. share of the Egyptian market, however, has recently slipped to about 20 percent. From 1977 to 1984, the U.S. share averaged 28 percent. The slippage largely reflects tougher competition from other exporters. The European Community has usually been Egypt's second largest supplier, providing a variety of high-value and bulk commodities. Other significant suppliers are Australia and Brazil.

"Because of increased competition from other suppliers, the magnitude of U.S. agricultural exports to Egypt in the near future will depend heavily on financial arrangements," says economist Parker.

Credit and export programs will be the key to recovering and maintaining our market share. Much of what the United States now exports to Egypt is purchased under credit programs which permit deferred payments.

The short-term credit advanced Egypt in fiscal 1985 included $50 million for U.S. wheat, $30 million for wheat flour, $55 million for tallow, $75 million for tobacco, $56 million for cotton, $54 million for feed grains, and $11 million for livestock products.

Credit and Sales Incentives May Be the Key to Protecting Our Share of Egypt's Growing Import Market



*Estimated.

Irrigation is critical to Egyptian food production. In the village of Qoota, a farmer works in a field that will produce rice, onions, and fodder.

Long-Term Credit Helps

In addition, Egypt received $225 million for fiscal 1985 purchases under the long-term credit provisions of P.L. 480, America's "Food for Peace" program.

"From the Egyptian viewpoint, this financing is preferable to the short-term guarantees," says Parker. "P.L. 480 financing stretches out the repayment period for up to 30 years and carries interest rates of 2 to 3 percent. A further, flexible option allows Egypt to repay its P.L. 480 loans with local currency in fiscal 1986. This should ease Egypt's foreign debt load, which is now $32 billion."

In contrast, short-term credit must be paid off in 3 years to commercial banks, and the interest rate is near the prevailing U.S. prime rate.

Egypt is also being aided by the U.S. Export Enhancement Program, which provides surplus farm commodities as a "bonus" to stimulate sales to targeted foreign markets.

One agreement with Egypt involves 175,000 metric tons of wheat flour to be sold at a price of $180 per ton (about $66 below the world price in early October). The sale will bring in more than $30 million. Another agreement involves a $55 million sale of 500,000 metric tons of wheat at $110 per metric ton.

"This price is possible because, on proof of delivery, USDA will award the exporter wheat from Commodity Credit Corporation stocks as a bonus worth an average of $21.87 per ton," says Parker.

But he adds that U.S. traders can't be complacent—even with the help of credit and export bonus programs—in the face of fairly fierce competition from other traders.

"Egypt is a growing market, and the United States will continue to be pressured by the EC and Australia, particularly for a greater share of wheat and wheat flour sales." □

[Based largely on information provided by economists George R. Gardner and John B. Parker of the International Economics Division, Economic Research Service.]

A Mixed Pattern of U.S. Sales

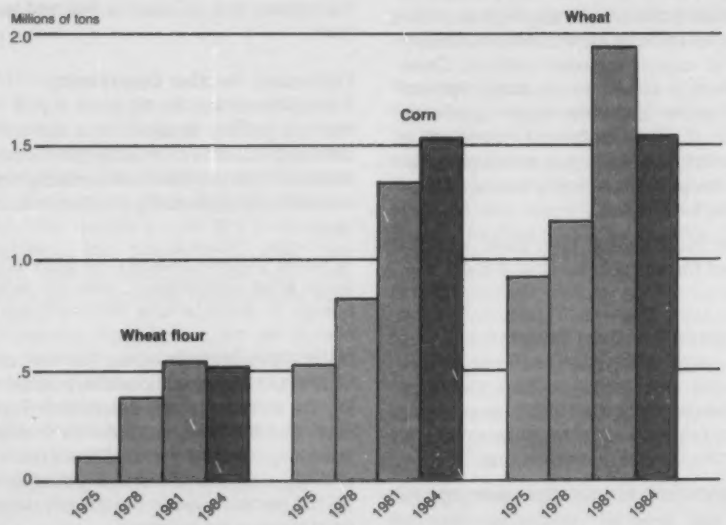
U.S. farm exports to Egypt have remained on the verge of breaking the $1-billion sales mark since 1981, but recent sales are down.

In 1981, U.S. farm sales reached $967 million. The following year sales fell to only $800 million, mostly because of reduced sales of poultry products and lower corn prices. U.S. exports climbed to $970 million in 1983, but went down again in 1984 to $909 million. Lower prices for U.S. farm goods are partly responsible for this stagnant sales picture.

Export volumes have been very volatile. U.S. wheat exports rose from 1.2 million tons in 1980 to 2 million tons in 1983, but fell to 1.5 million tons by 1984. Wheat flour exports jumped by more than a million tons, zooming from 338,000 tons in 1980 to 1.4 million tons in 1983. But, by 1984, wheat flour sales had plummeted, dropping to about 500,000 tons. U.S. corn exports to Egypt went up from nearly 1 million tons in 1980 to 1.5 million tons in 1984.

Economist John Parker estimates U.S. farm sales in 1985 at about $860 million, with export volume close to 1984 levels. A variety of programs should cause the value to rise in 1986, but sales outside government programs may be only a fifth the 1981 peak of $500 million.

Sales of Major U.S. Farm Commodities to Egypt Show a Mixed Pattern in the 1980's



Improving China's Livestock Industry

When the Chinese government set a goal of more meat in the nation's diet, trade analysts waited for a sign. The sign came when China began importing top-quality pigs, chickens, and dairy cattle from several nations, including the United States, to improve the bloodlines of its native stock.

The breeding program could be a very positive sign for trade, according to economist Francis Tuan of USDA's Economic Research Service.

For now, shipments of American animals represent a new sales outlet for U.S. farmers, Tuan says.

For the longer term, these shipments provide concrete evidence of the Chinese government's commitment to improving the variety and quantity of meat, milk, and eggs in the Chinese diet. This has potential trade implications because larger meat production would almost certainly require China to buy more equipment to process animal feeds and meat. A growing livestock sector could also lead to greater, long-term dependence on feed grain imports.

Tuan explains that "in modernizing its livestock sector, China will face a wide variety of issues. Cross-breeding to improve varieties is only one. As cross-breeding improves native bloodlines, imports of livestock will probably slow down considerably. But, to support a modern industry, China will have to ensure an adequate supply of feed grains and other feed ingredients, secure the technology and equipment to manufacture animal feeds on a large scale, and develop scientifically balanced feed rations for livestock."

It's in these areas, Tuan says, that the United States could become a major supplier.

Increased U.S. Corn Exports?

Take corn as an example. Sales of U.S. corn (and other grains) to China have taken a nose dive since the 1983/84 season and are not likely to improve substantially, at least through the end of this year.

In the long run, however, that could change.

Most analysts agree that the Chinese would save time and money by importing the technology and equipment.

The reason: It's unlikely that China would be able to produce an adequate corn crop to meet the country's increased livestock feeding needs and also live up to export trade agreements that have already been signed with the Soviet Union and Japan.

In addition, "the majority of corn and other feed grains are grown in north and northeast China," Tuan says. Because highway and rail systems in the interior of the country are so poor, it is very difficult to transport the grains to the south. Southern areas produce more than a fourth of the nation's meat animals but only 2 percent of the feed grains.

"In the south, there are corn-deficit areas right now because of the transportation problems," he adds. "In some cases, it will be easier and more cost effective to export corn grown in the north from China's northern ports and import corn from abroad into the south. It would not be surprising to see this happen with U.S. corn in the next few years."

Equipment: Another Opportunity

Transportation and an adequate supply of corn are just two obstacles to a self-sufficient livestock sector. Once the grain is produced or imported, China will probably face considerable processing problems, Tuan says.

Although Chinese industry currently produces small equipment, it lacks the technology to manufacture the machinery needed for major feed grain processing plants. Most analysts agree that the Chinese would save time and money by importing the technology and equipment, Tuan says, and the need to import on a large scale may come fairly soon. China's poultry and egg production is increasing at rates of 50-100 percent a year in the densely populated areas of the country.

The Chinese have already purchased some Japanese and European manufacturing equipment. Although there have been no purchases of any major U.S. equipment, the outlook for U.S. manufacturers is good.

One reason is that the U.S. Feed Grains Council (which represents American feed grain producers) donated a state-of-the-art compound feed manufacturing unit to China last year. Installation of the equipment, scheduled for completion this month in Nanjing Province, will allow the production of about 90,000 tons of feed a year, far greater than the capacity of any other equipment currently in use. The unit was donated to China to create a market for U.S. feed grains, according to Mike McDaniel, a Council representative.

But the project may also help promote U.S. equipment, Tuan adds.

"It has impressed Chinese officials because, unlike any other equipment they have, microcomputers control feed formulations. This increases speed and efficiency. The Chinese are now seriously considering purchasing some U.S. machinery. Apparently, the wide range of software available for the American equipment gives it an advantage," Tuan says.

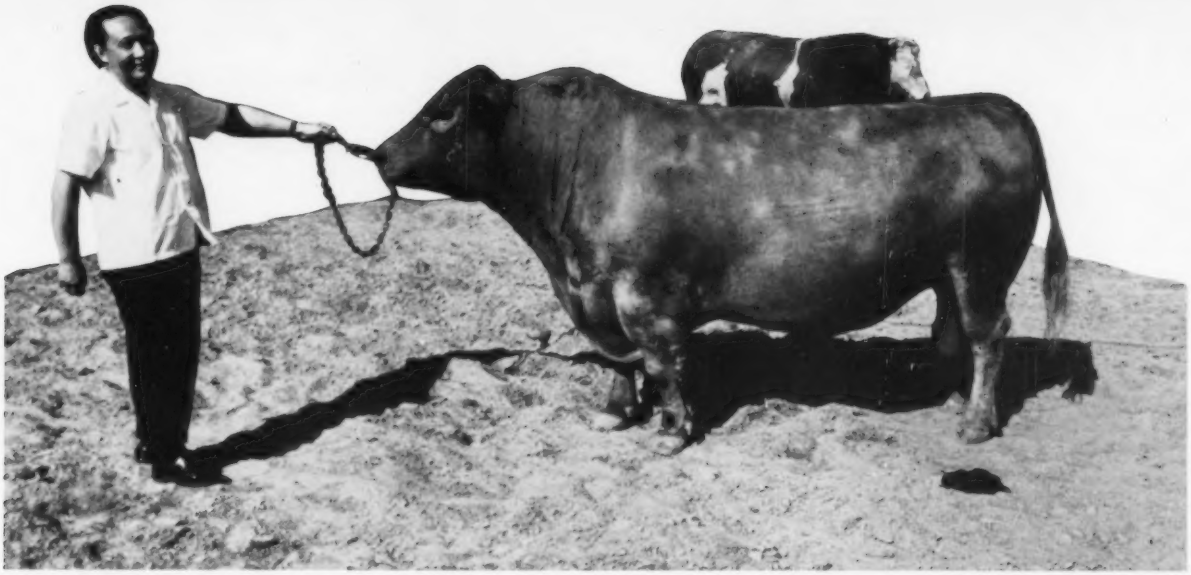
Before any of this equipment or technology is imported on a large scale, however, China's livestock industry will have to improve substantially. And that's where cross-breeding China's native stock with imported stock will play a major role. The Chinese are initially concentrating on poultry, dairy cattle, and swine.

U.S. Livestock Shipped in '85

Last year, China imported a significant number of live farm animals from the United States, Tuan says, referring to approximately 1,200 dairy cows (mostly Holstein heifers), 1,190 pigs, and about 100,000 chicks.

So far in 1986, shipments have totaled 353 Holstein dairy cows and 1,836 pigs. Additional shipments are in the planning stages, Tuan says.

These continuing shipments are largely the result of revisions in 1983 and 1984 health



Imported beef and dairy bulls are improving the bloodlines of native Chinese stock and may soon help put more milk and meat on Chinese tables.

agreements between the United States and China. The revisions, which took effect on December 1, 1985, for cattle and on January 1, 1986, for swine, further relaxed China's very strict health requirements for livestock shipments from the United States.

It was the revision, according to Marlene Stinson of USDA's Animal and Plant Health Inspection Service, that led to last year's shipment of 1,197 head of U.S. breeding cattle valued at $3.4 million.

Still, Tuan says, China's health requirements remain tough for U.S. livestock shipments. The major reason: fear of bluetongue, an ongoing problem in the western United States. Bluetongue, a viral disease which is potentially lethal in sheep (although not harmful to humans), is usually transmitted by insects found on cattle. The Chinese are so concerned about the threat of bluetongue, which is not believed to exist in their country, that they've virtually banned cattle shipments from the western United States and imposed a series of costly and time-consuming tests for cattle shipments from other parts of the country.

Most of the cattle that have been exported to China from the United States have come from the upper Midwest and the Northeast, in areas that are free of bluetongue. One shipment from Washington state was made in 1985 under a special waiver, Stinson says. For the 1986 season, China is now recognizing that portion of Washington west of the Cascade Mountains as an eligible area for the export of cattle.

The current health requirements include: approval by a Chinese veterinarian of each animal and each farm where the export animals were raised; isolation of cattle and swine for at least 30 days prior to shipment; testing for bluetongue and a variety of other diseases, including brucellosis and tuberculosis in cattle and several diseases in poultry.

After their arrival in China, the animals are again placed in quarantine, this time for 45 days. Then, the cattle and swine are retested. Similar restrictions apply to poultry.

Stiff Competition

All these requirements place U.S. producers at something of a disadvantage when competing with other exporters. None of our current competitors—Canada, the Netherlands, New Zealand, Austria, and West Germany—has any bluetongue problems, and, consequently, each has been able to negotiate less restrictive health and quarantine requirements with China.

The bottom line, according to Tuan, is that it is probably cheaper for other exporters to ship livestock to China than it is for the United States. In the United States, costs of conducting the required tests on cattle range from $80 to $140 per animal, Stinson says.

What's more, Canada and China have already signed a 5-year trade agreement, clearing the way for Canadian shipments of cattle, swine, and poultry, in addition to livestock semen and embryos. Another Canadian-Chinese agreement, reportedly worth $2.1 million, will send Canadian educators and technicians to China's Harbin Domestic Animal Breeding Center in Heilongjian Province to train Chinese personnel in the management and scientific techniques of artificial insemination. How much of this specialized market may be available to U.S. exporters is still not clear, Tuan says. Although negotiations are currently in progress, no agreements regarding semen and embryos have been formalized.

Two-Way Trade

While the primary emphasis so far has been on sending U.S. livestock to China, U.S. trade officials are also considering importing Chinese swine, as well as swine embryos and semen, into the United States. The objective: cross-breeding Chinese and U.S. swine here.

According to Bert Hawkins, administrator of USDA's Animal and Plant Health Inspection Service, the Chinese breeds have several advantages over U.S. breeds. "Chinese hogs are extremely prolific and can subsist on a bulkier diet. One drawback, however, is that they do not gain weight as fast as U.S. breeds," Hawkins says.

"No agreement between the two nations has been reached yet," he adds. "But we

Native Chinese hogs yield fatty meat and are relatively slow to gain weight, but they do have larger litters than American breeds.

plan to continue discussions that may lead to increased two-way trade in breeding stock that will improve the livestock and poultry industries of the United States and China." □

[Based largely on information provided by economist Francis C. Tuan of the International Economics Division, Economic Research Service.]

An Overview of the Industry

China's livestock sector has made notable gains in recent years. Red meat production jumped an impressive 80 percent between 1978 and 1984, according to USDA economist Francis Tuan of the Economic Research Service.

Tuan notes, however, that China's still-developing meat sector is not yet ready for comparison with the well-established meat industries of the United States or Western Europe. Such comparisons are useful only in providing perspective.

China's red meat output, for example, was 15.4 million metric tons in 1984. U.S. meat production that same year was 17.8 million metric tons. Given China's much larger population (more than 1 billion people, versus around 235 million Americans), per capita consumption comparisons are lopsided. Average red meat consumption in China was only around 30 pounds per person in 1984, versus more than 177 pounds in the United States.

China still has a long way to go in improving its livestock sector, Tuan says, but tremendous gains have been made during the last few years. Using the most recent data available, he gives a brief overview of China's livestock industry:

• *Poultry.* This is the fastest growing sector of China's livestock industry, probably because chickens have higher feed conversion ratios (more meat produced per pound of feed) than other meat animals. Generally speaking, poultry is still produced in backyard, household operations, mostly in rural areas.

China's Bureau of Agriculture and Forestry reported that in Nanjing, Jiangsu Province, a farmer could earn a 10-yuan net profit from raising one laying hen. Multiplied times 100 layers, the net profit may amount to 1,000 yuan, a nice living given the average per capita farm income of only 355 yuan a year. Consequently, the number of households specializing in poultry production in Nanjing increased to 70,000 in 1984 from a reported 26,500 in 1983.

• *Dairy.* During the last few years, the growth rates of both dairy cow numbers and milk output averaged about 15 percent a year. China's 1984 dairy herd totaled 1.3 million cows, and milk production reached 2.19 million metric tons. Holsteins make up about 70 percent of the herd. The rest are classified as dual-purpose dairy cattle. Most of China's dairy cows are raised in state-run farms near cities.

Per capita milk consumption is very low in China, averaging just under 5 pounds a year. (Americans drink an average 243.4 pounds of fluid milk and cream, and consume 582 pounds, milk equivalent, of all dairy products.) China's urban residents fare better than those living in rural areas: Consumers in Beijing averaged almost 42 pounds of fluid milk in 1984, but over 11 pounds of that was provided by a World Food Program project.

Milk yields per cow are not available for the country as a whole, but are generally much higher in the north. Management depends heavily on manual labor, with mechanized milking limited only to very large farms. Poor herd management and inefficient or unscientifically formulated feeding are the major obstacles to modernizing China's dairy industry.

• *Hogs.* China's hog industry is characterized by its large animal inventory and low annual meat output. With an inventory of around 300 million hogs, pork production totaled only about 14.5 million metric tons in 1984. While U.S. production—at 6.7 million metric tons—is roughly half that of China, it came from a 1984 inventory of fewer than 55 million hogs and pigs. China, however, is making progress, having almost doubled its pork output between 1978 and 1984.

Meat quality is another problem. Consumers, particularly those in urban areas, want lean pork, yet most of what's available is fatty. Native Chinese hogs characteristically yield fatty meat.

Cross breeding with imported varieties has helped to put more lean meat on the table. Cross-bred hogs yield 55 to 58 percent lean meat, compared with yields of 40 to 45 percent from native Chinese stock. Although promising, cross breeding efforts need to be greatly expanded.

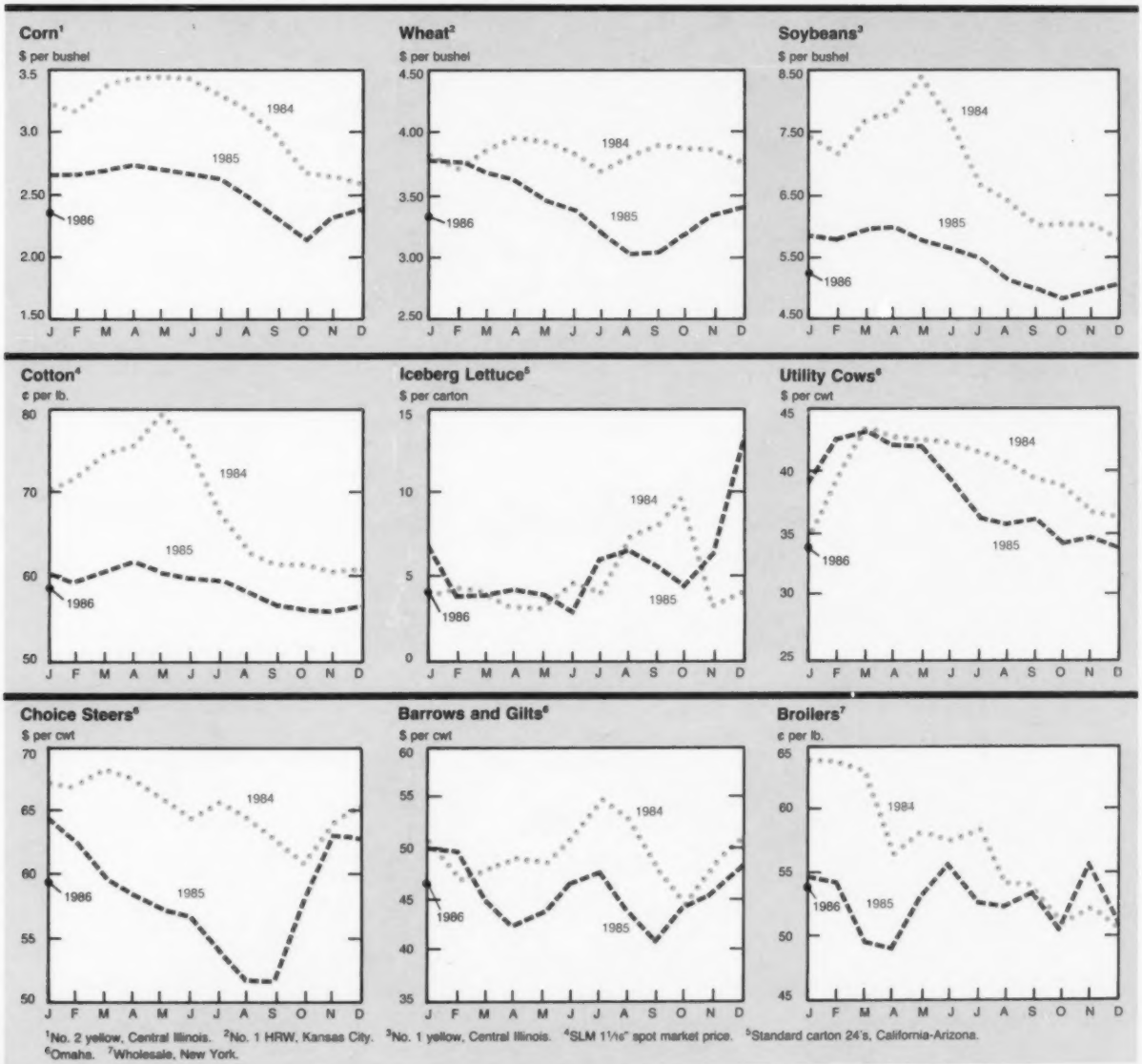
In the meantime, consumer demand will continue on an upward trend. Per capita consumption averaged about 28 pounds of pork in 1984, up from only 17 pounds in 1978. And pork, incidentally, makes up about 94 percent of all red meat consumption in China.

• *Beef and other ruminants.* Basically, cattle are raised for field work and transportation, not as a source of food. Animals slaughtered for meat are usually those that are considered too old or too lame for work. In 1984, around 3.9 million head were slaughtered, only 4.7 percent of the total cattle inventory.

FARMLINE TRENDS

Monthly Price Monitor

USDA's January index of farm prices declined 3.1 percent and was almost 9 percent below year-earlier levels. Corn, at $2.37 per bushel, was about even with December's price, but wheat declined 10¢ to $3.32. Soybeans rose 15¢ to $5.29, the highest price since July 1985. Cotton climbed to 58.4¢ per lb., also the highest since July. Prices for lettuce returned to more "normal" levels after jumping above $13 in December. In the meat animals area, broiler prices gained about 4¢ to 54.1¢ per lb., while choice steers dropped below $60 per cwt. Utility cows gained $1 to $34.86 per cwt. Barrow and gilt prices declined to $46.65. Monthly average prices for all commodities shown were lower in January 1986 than in January 1985.



[1]No. 2 yellow, Central Illinois. [2]No. 1 HRW, Kansas City. [3]No. 1 yellow, Central Illinois. [4]SLM 1 1/16" spot market price. [5]Standard carton 24's, California-Arizona. [6]Omaha. [7]Wholesale, New York.

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